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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,909	11/30/2001	Takashi Asahina	P21763	3260

7055 7590 05/19/2004

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EXAMINER

PARSONS, THOMAS H

ART UNIT PAPER NUMBER

1745

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/996,909	ASAHINA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thomas H Parsons	1745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10,12-14,17 and 20 is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,9,15,16 and 18 is/are rejected.
- 7) ☒ Claim(s) 3,4,7,8,11 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "52" as shown on Figure 4A; and, "55" as shown on Figure 5A. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

**The abstract of the instant application is approximately 168 words, and should be shortened as appropriate.**

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites the limitation "said plurality of connecting rods" in line 7. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

5. Claims 1, 2, 5, 6, 9, 15, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0962993, and further in view of Bechtold et al. (5,776,798).

**Claim 1:** EP0962993 in Figure 1 discloses a prismatic battery module comprising: a prismatic battery case (51) constructed by connecting a plurality of prismatic cell cases (3) together in series, the plurality of cell cases being separated from one another by separation walls (54) respectively;

an electrode plate group (2a-2j) formed by alternately stacking positive and negative electrode plates interposing a separator therebetween (paragraph [0039]),

the prismatic battery module being further constructed such that adjacent electrode plate groups consisting of the electrode plate group are connected to each other by connecting adjacent collectors of the respective electrode plate groups to each other through a connection aperture (60) formed in a central portion of the separation (54) wall and disposing the adjacent electrode plate groups in respective cell cases alongside in series (paragraph [0029]), and a sealing material (resin of support element 19) is applied to each space between each of the separation

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walls around the connection aperture and each of the collectors. (See paragraphs [0028]-[0029], and paragraphs [0040]-[0043].

EP 0962993 does not disclose an electrode plate group further comprising forming lead portions projecting from one side portion of the positive electrode plates and from one side portion of the negative electrode plates in opposite directions, respectively; and collectors connected to the lead portions on both sides of the electrode plate group.

Bechtold et al. in Figure 4 disclose an electrode plate group further comprising lead portions projecting from one side portion of the positive electrode plates and from one side portion of the negative electrode plates in opposite directions, respectively; and collectors connected to the lead portions on both sides of the electrode plate group, and that such an electrode plate group increases the volume capacity of prismatic cells having a large number of electrode pairs, and reduces the risk of a short circuit between electrode plates of opposite polarity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the electrode plate group of EP 0962993 with the electrode plate group of Bechtold et al. because Bechtold et al. teach an electrode plate group that would have increased the volume capacity of prismatic cells having a large number of electrode pairs, and reduced the risk of a short circuit between electrode plates of opposite polarity thereby improving the overall performance of prismatic cells.

**Claim 2:** EP 0962993 in Figure 1 discloses a prismatic battery module comprising:  
a prismatic battery case (51) having a single internal space therein;

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an electrode plate group formed by alternately stacking positive and negative electrode plates interposing a separator therebetween (paragraph [0039]),

the prismatic battery module being further constructed such that a plurality of electrode plate groups (2a-2j) consisting of the electrode plate group are connected together by connecting adjacent collectors of the adjacent electrode plate groups to each other and arranging the plurality of electrode plate groups alongside in series in the prismatic battery case (col. 2: 43-49), and the single internal space is partitioned into a plurality cell cases (3) by applying a sealing material (resin of support element 19) to each space between outer periphery of the adjacent collectors and a wall surface of the prismatic battery case. (See paragraphs [0028]-[0029], and paragraphs [0040]-[0043].

EP 0962993 does not disclose an electrode plate group further comprising forming lead portions projecting from one side portion of the positive electrode plates and from one side portion of the negative electrode plates in opposite directions, respectively; and collectors connected to the lead portions on both sides of the electrode plate group.

Bechtold et al. in Figure 4 disclose an electrode plate group further comprising lead portions projecting from one side portion of the positive electrode plates and from one side portion of the negative electrode plates in opposite directions, respectively; and collectors connected to the lead portions on both sides of the electrode plate group, and that such an electrode plate group increases the volume capacity of prismatic cells having a large number of electrode pairs, and reduces the risk of a short circuit between electrode plates of opposite polarity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the electrode plate group of EP 0962993 with the electrode plate group of Bechtold et al. because Bechtold et al. teach an electrode plate group that would have increased the volume capacity of prismatic cells having a large number of electrode pairs, and reduced the risk of a short circuit between electrode plates of opposite polarity thereby improving the overall performance of prismatic cells.

**Claim 5:** EP 0962993 in Figure 1 discloses a seal rubber (support element 19) used as the sealing material that is fixedly bonded to the entire outer periphery of the adjacent collectors and an outer periphery of the seal rubber is pressed against wall surfaces of the prismatic battery case for sealing spaces formed between the adjacent collectors and the wall surfaces of the prismatic battery case. (See paragraphs [0043-0046]).

**Claim 6:** EP 0962663 in Figure 1 discloses that adjacent collectors are connected to each other by welding (paragraph [0046]) the adjacent collectors to an electroconductive plate (metallic rod 9) disposed therebetween and spaces between outer peripheries of the electroconductive plate and wall surfaces of the prismatic battery case are sealed with a sealing material (resin of the support element 19). (See paragraphs [0028]-[0029], and paragraphs [0040]-[0046]).

**Claim 9:** A prismatic battery module comprising: a prismatic battery case constructed by connecting a plurality of prismatic cell cases together in series, the plurality of cell cases being separated from one another by separation walls (54) respectively;

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an electrode plate group (2a-2j) formed by alternately stacking positive and negative electrode plates interposing a separator therebetween (paragraph [0039]); and

an electroconductive plate (metallic rod 9) provided in at least one sidewall of the prismatic battery case and facing adjacent cell cases, the electroconductive plate being connected to adjacent collectors of adjacent electrode plate groups.

EP 0962993 does not disclose an electrode plate group comprising lead portions projecting from one side portion of the positive electrode plates and from one side portion of the negative electrode plates in opposite directions, respectively; and collectors connected to the lead portions on both sides of the electrode plate group.

Bechtold et al. in Figure 4 disclose an electrode plate group comprising lead portions projecting from one side portion of the positive electrode plates and from one side portion of the negative electrode plates in opposite directions, respectively; and collectors connected to the lead portions on both sides of the electrode plate group, and that such an electrode plate group increases the volume capacity of prismatic cells having a large number of electrode pairs, and reduces the risk of a short circuit between electrode plates of opposite polarity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the electrode plate group of EP 0962993 with the electrode plate group of Bechtold et al. because Bechtold et al. teach an electrode plate group that would have increased the volume capacity of prismatic cells having a large number of electrode pairs, and reduced the risk of a short circuit between electrode plates of opposite polarity thereby improving the overall performance of prismatic cells.

Claim 15: The rejection of claim 15 is as set forth above in claim 1.



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Claim 16: The rejection of claim 16 is as set forth above in claim 1.

Claim 18: The rejection of claim 18 is as set forth above in claim 2.

***Allowable Subject Matter***

6. Claims 10, 12-14, 17 and 20 are allowable over the prior art of record.
7. Claims 3, 4, 7-8, 11, 19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Reasons for Indicating Allowable Subject Matter***

8. The following is a statement of reasons for the indication of allowable subject matter:

The EP 0962993 in combination with Bechtold et al. disclose connecting adjacent collectors via a support elements and electrical connection elements arranged so as to pass through partition sections that defines spaces for individual cells and wherein such a structure reduces creep deformation, and improves durability in regard to vibration and impact.

In contract, the claimed invention is directed toward various structural embodiments that, according to the Applicants, shorten the electrical communication path between electrode plate groups and reduces the connection resistance between cells, thereby reducing internal resistance of the prismatic battery module.

Structural embodiments include:

L-flanges of adjacent collectors positioned in T-slots formed in sidewalls of the prismatic battery case;

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Adjacent collectors connected to each other by using an electroconductive adhesive;

Adjacent collectors connected to each other via connection projections welded on adjacent collects;

Lead portions of adjacent electrode plate group connected to U-shaped collectors, and a sealing material placed between outer peripheries of the U-shaped collector and wall surfaces of said prismatic battery case;

a plurality of connecting rods formed so as to penetrate lead portions on both sides of the electrode plate group, respectively; and an electroconductive plate provided in at least one sidewall of the prismatic battery and facing adjacent cell cases, each of the plurality of connecting rods and the electroconductive plate being connected to each other;

a plurality of cell cases and electroconductive plates connected to thereby form a prismatic battery case is constructed by connecting a plurality of prismatic cell cases together, the plurality of cell cases being arranged alongside one by one in addition to being spaced apart from each other and being constructed in such a manner that one of both ends of one of the cell cases and one of both ends of another one of the cell cases adjacent to the one of cell cases are spatially connected to each other through a communicating space at a position of a connection portion, and connecting a plurality of electrode plate groups together in such a manner that one of both lead portions of one of adjacent electrode plate groups and one of both lead portions of the other of the electrode plate groups are connected via an electroconductive plate;

separating walls made of a crank-shaped electroconductive plate for connecting a plurality of prismatic cell cases together in series wherein separating walls have connection

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surfaces, and adjacent collectors are connected to each other by welding the adjacent collectors to associated connection surfaces interposing the associated connection surfaces therebetween.

**Neither EP 0962993 nor Bechtold et al. teach or suggest such structural embodiments, and therefore the combination of references would not lead one skilled in the art to the claimed invention.**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas H Parsons  
Examiner  
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